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# M E M O R A N D U M

**DATE:** August 26, 2014

**TO:** Rose Longoria, Yakama Nation Fisheries

**FROM:** Bob Dexter, Aquatic Toxicologist

**SUBJECT:** Comments on Draft Appendix A-2 of Section 2 of the Portland Harbor Feasibility Study

We understood the goal of this appendix to be to explain the derivation of the PRGs that have been developed and included in the FS, i.e., using the discussion in the text along with supporting documents cited in the appendix, a reader should be able to calculate the same PRGs. As currently written, the appendix does not fully accomplish that goal and is confusing. Our main concerns include the following:

1. For sediments, PRGs are presented in Table A-1 for only 22 non-TPH substances, but the text states at the start of Section 1.1 that "at least" 53 contaminants or groups of contaminants were identified as COCs in the BERA, with no explanation regarding what happened to the remainder. Similarly, the Logistic Regression Model (LRM) discussion states that LRMs were developed for 68 COPCs, yet only 9 chemicals are included in Table A-1 with PRGs that were derived from LRMs for sediments. Please clarify the discrepancy between the number of COCs identified from the BERA and the number of COCs presented with ecological PRGs.

2. For those chemicals included in Table A-1, it is difficult to determine the source of some of the PRGs. The derivation of PRGs for clams, crayfish, and worms is not mentioned in the text. The discussion of the LRM is confusing and does not clarify, for example, which normalization model was used for the calculated PRGs. Not all of the PEC-based PRGs were found in MacDonald et al (2000), as stated in the text.

3. The text includes substantial generic discussions of general approaches to PRG development even when the approach was only applied to a few chemicals. It makes more sense to simply discuss concisely and specifically the derivation of each of the PRGs. For example, RAO 5 tissue residue PRGs (referred to as "fish" in the text, but we assume includes clams, crayfish, and worms) are only presented for PCBs, total DDX, BEHP, and TBT. It would seem simpler and more germane to the purpose of the Appendix to simply discuss those chemicals with PRGs.

4. The text includes seemingly unimportant but confusing side observations. For example, at the end of Section 1.0, the text includes two sentences noting that the work required a

number of assumptions, but none of those assumptions are presented or discussed. The implication is that the PRGs are uncertain, but how so and to what extent? Similarly, the discussion of the LRM states that some of normalizations “created difficulties in back transforming” the PRGs to a dry-weight basis, but no follow up is provided as to what that meant to the PRGs presented. Were the difficulties a bad thing or unimportant?

Specific Comments

Table A-1. The table includes the Fish Dietary category (with various trophic classification groups), but lists no PRGs. These columns serve no purpose and can be eliminated. The “Tissue Residual Assessment” header includes the LRM and PEC columns, which is not appropriate; the LRM and PEC values are not tissue-based. Also, the term is more appropriately “Residue” not “Residual.”

Section 1.1. Generic Sediment Quality based PRGs. The source of PECs, MacDonald et al. (2000), does not include PEC concentration for LPAH or Aldrin, yet both of these chemicals identify a PEC-based PRG in Table A-1. The source of the PEC values for these chemicals should be added to the text.

Section 1.1. Tissue-residue based Sediment PRGs. The presentation and discussion of the BSAF calculation is unnecessary and unbalanced since this section does not include a similar discussion of the FWM. The citations to previous reports are sufficient to explain the approach. More importantly for the intent of this section, the approach (BSAF, BSAR, or FWM) should be specified for each of the chemicals for which the PRGs were developed, i.e., PCBs, DDX, BEHP, and TBT.

Section 1.1. Total Petroleum Hydrocarbon PRGs. A citation should be provided for the “bioaccumulation model” used to back-calculate relevant water concentrations.

Section 1.2. Sediment PRGs for RAO 6. The text states that PRGs for RAO 6 were developed for 10 organic contaminants, but sediment PRGs are shown for only PCBs, dioxin/furans, Aldrin, DDE, and DDX in Table A-1. If only the latter PRGs were actually developed, this section should only focus on how the specific PRGs for those chemicals were developed.